exceeds the GUIDELINES' threshold of 100 points for horizontal mergers resulting in a post-merger HHI above 1,800.

24. ***Concentration in the Supply of Specific Services within the Larger Business Market.*** Wide area telecommunications services ("WATS," or "800" services) within the large-volume business market do not by themselves constitute relevant markets; even so, concentration in sales for these services indicates that there is a general pattern of share ownership regardless of the type of service provided. Table Five reports sales concentration in inbound WATS (800 service). As the table illustrates, long-distance carriers' sales of 800 service are highly concentrated, with a pre-merger HHI of 3,282 (the numerical equivalent of approximately 3.1 equal-sized firms). The proposed merger would increase the HHI by more than 500 points to 3,846, or would reduce the 3.1 equal-sized firms to approximately 2.6 equal-sized firms. The three largest carriers account for 86.7 percent of all 800 service sales; of interest is that AT&T has a ten-point greater share in this service, which it originated, than in all large business services.[21] Thus, although inbound WATS (800) service does not constitute a separate market, the level of increasing concentration for that service parallels those found for the mass market and the larger business market. The merger would cause an increase of 564 points in the HHI for inbound WATS (800) service, resulting in a post-merger HHI of 3,846.

[21] In addition to sales of inbound WATS, there also are sales data for outbound WATS. However, it should be appreciated that sales of outbound WATS have decreased substantially since 1992, as that service largely has been replaced in the market by Combined Services, such as AT&T *Uniplan*, MCI *Network One*, and Sprint *Clarity*, which offer both inbound and outbound services. The carriers' sales of outbound services are concentrated, with a pre-merger HHI of 0.2675 and a post-merger HHI of 0.3049. This increase in concentration corresponds to a reduction in the number of equal-sized firms from approximately 3.7 to 3.3. For sales of outbound WATS, the largest three carriers account for 76.3 percent of sales.

TABLE FIVE
INBOUND WATS (800 SERVICE) MARKET SHARES

Carrier	1998 Market Share	Pre-Merger HHI	Post-Merger HHI	Change in HHI
MCIWorldCom	0.271	0.0736	0.1409	
Sprint	0.104	0.0108	-	
AT&T	0.492	0.2425	0.2425	
Frontier	0.010	0.0001	0.0001	
Qwest/LCI	0.011	0.0001	0.0001	
Cable & Wireless USA	0.015	0.0002	0.0002	
Excel/Teleglobe	0.001	0.0000	0.0000	
Other IXCs	0.094	0.0009	0.0009	
LECs	0.020	0.0000	0.0000	
Total	1.000	0.3282	0.3846	0.0564

Source: Dataquest, Public Telecommunications Services North America Market Share and Forecast, 1999.
Note: Market shares of firms in the Other IXC and LEC categories are assumed to be approximately one percent.

25. Of additional interest is the concentration in sales of wholesale services as shown in Table Six; wholesale services consist primarily of the provision of facilities used by resellers in breaking down services for specific offerings to the mass market. The increase in concentration that would be caused by the proposed merger is particularly high because of MCIWorldCom's large share. The pre-merger HHI increases by approximately 1000 points from 2,023 to 3,028, implying a reduction in the number of equal-sized firms from approximately 4.9 to 3.3. Here the largest three carriers account for 69.5 percent of all sales. The combined MCIWorldCom/Sprint share would exceed half of all sales and would be more than twice AT&T's share. As noted, wholesale services do not constitute a separate market, but again the pattern of increasing concentration for that service reflects the levels observed for the mass market and the larger business market. The merger would cause an increase of 1,005 points in the HHI for wholesale services, resulting in a post-merger HHI of 3,028.

TABLE SIX
WHOLESALE MARKET SHARES

Carrier	1998 Market Share	Pre-Merger HHI	Post-Merger HHI	Change in HHI
MCIWorldCom	0.374	0.1400	0.2585	
Sprint	0.134	0.0180	-	
AT&T	0.187	0.0350	0.0350	
Frontier	0.061	0.0038	0.0038	
Qwest/LCI	0.047	0.0022	0.0022	
Cable & Wireless USA	0.043	0.0019	0.0019	
Excel/Teleglobe	0.011	0.0001	0.0001	
Other IXCs	0.139	0.0013	0.0013	
LECs	0.003	0.0000	0.0000	
Total	1.000	0.2023	0.3028	0.1005

Source: Dataquest, Public Telecommunications Services North America Market Share and Forecast, 1999.
Note: Market shares of firms in the Other IXC and LEC categories are assumed to be approximately one percent.

26. In contrast to the above analysis contained in Tables Three through Six, B&B offer 32 press releases on special contracts between large-volume business customers as proof of the competitiveness of the large business market. But special contracts are indicative of discriminatory price offerings to a few firms possessing a wide array of buying alternatives and perhaps even limited market power on the buying side. Such special contracts are of minimal benefit to mass market consumers, except when broken down to provide resellers' services. Moreover, the anecdotes recited by B&B do not constitute data that by themselves indicate widespread competitiveness in the volume business services market. A more accurate picture of the competitiveness of the large business market can be obtained by employing the methodology of industrial organization economics, as adopted in the HORIZONTAL MERGER GUIDELINES, which requires examining data on market concentration, price-cost margins, and demand elasticities.

27. ***Market Structure Implications of Facilities-Based, Long-Distance Carriers Other than AT&T, MCIWorldCom, and Sprint.*** In the first four years since

passage of the Telecommunications Act of 1996, numerous long-distance carriers have entered one or the other of these two national markets. A handful of these firms have established the capacity across the country to provide facilities-based service, and these have focused on the large business market. With substantial annual increases in demand for data and Internet applications, these new companies have been deploying advanced networks of fiber optic transmission capacity. The results are indicated by changes in shares of carrier's fiber-route miles since 1990 (as in Table Seven).

28. At the end of 1998, long-distance carriers other than the largest three offering wholesale service and some retail included Qwest, Excel, and Frontier, as well as a host of smaller facilities-based providers or resellers. However, even the largest of these had revenues only about one-half of those of Sprint. While it is true that these companies have experienced considerable growth in recent years, it is important to note that they do not have substantial access to consumers and are therefore relegated to the less concentrated large business market. Consider, for example, the difference in the relative amount of customer contact with residential customers maintained by AT&T, MCIWorldCom, and Sprint versus that maintained by Qwest, Excel, and Frontier. Customer awareness of each of the "big three" interexchange carriers is quite high as the natural result of years of paying monthly bills and being exposed to extensive advertising in print, radio, and television media. In contrast, customer awareness of Qwest, Excel, and Frontier is more limited. These firms serve relatively few residential customers and, therefore, have little day-to-day contact with the large majority of residential customers. The firms have not engaged in large amounts of advertising targeted to residential customers.

TABLE SEVEN
SHARES OF LONG-DISTANCE CARRIERS
(PERCENT OF CARRIER FIBER SYSTEM ROUTE MILES)

Company	1990	1991	1992	1993	1994	1995	1996	1997	1998	Mid-1999
AT&T	38	37	38	37	37	39	36	31	25	22
Electric Lightwave	0	0	0	0	0	0	1	1	1	4
Global Crossing	0	0	0	0	0	0	0	0	0	10
Frontier	0	0	0	0	0	1	0	3	8	-
IXC	1	1	1	1	1	1	2	4	4	5
Qwest	0	0	0	0	0	0	2	3	8	10
LCI	1	2	2	1	1	1	1	2	-	-
Sprint	26	26	26	25	24	24	22	19	15	12
Williams	0	0	0	0	0	0	0	0	3	11
WorldCom	13	13	12	12	12	11	11	16	14	24
MCI	19	19	19	21	22	22	22	20	16	-
Others	2	2	2	2	2	1	2	2	8	2

Sources: Jonathan M. Kraushaar, Industry Analysis Division, Federal Communications Commission, *Fiber Deployment Update: End of Year 1998*, at Table One (Sept. 1999) (all carriers 1998); Jonathan M. Kraushaar, Industry Analysis Division, Federal Communications Commission, *Fiber Deployment Update: End of Year 1997*, at Table One (Sept. 1998) (all carriers 1990-1997); Toh Han Shih, MCIWorldCom Plans Aggressive Expansion in South-east Asia, Business Times, June 28, 1999, at 10 (MCIWorldCom 45,000 miles in U.S.); Qwest Communications Offers to Acquire U S West and Frontier In Plan to Create $87 Billion Worldwide Communications Company, PR Newswire, June 13, 1999 (Frontier 18,000 route miles, Qwest 18,815 route miles); Williams Communications Extends Network Into Tier One Metropolitan Markets, PR Newswire, May 24, 1999 (Williams 20,000 route miles); IXC Links Atlanta to Miami Via Fiber Network, Atlanta Journal and Constitution, May 8, 1999, at 2C (IXC 10,200 miles in service); Electric Lightwave, IXC Extend Networks With $178 Million Fiber Exchange, Fiber Optics Online, Apr. 13, 1999 (Electric Lightwave building 7,500 miles); Eric Kreifeldt, Global Crossing Acquires Frontier for $11.2 Billion, Claims Largest Fiber Network, Fiber Optics Online, Mar. 17, 1999 (AT&T 41,000 route miles). Totals may not add to 100 percent due to rounding.

29. Given the lack of contact with residential customers, it is not surprising that the second-tier carriers have focused their marketing efforts primarily on wholesale and large business customers. Even Qwest, which appears to be making some efforts to reach retail customers directly through its investments in firms providing Internet and last-mile digital subscriber line services,[22] nevertheless is primarily a carrier's carrier. Wholesale deals with GTE, Frontier, and WorldCom alone account for roughly half of Qwest's network capacity.[23] And even where these carriers have entered retail markets, they appear to be focused on large volume subscribers (e.g., Qwest's retail overtures for the most part are limited to retail business customers).[24] The impact of these carriers, as represented by their annual revenues, on the dominant position of the three largest carriers is reflected in Tables Three through Six.

30. In contrast to these FCC data on current fiber capacity, B&B offer an investment analyst's report from Credit Suisse/First Boston that forecasts a combined market share of capacity for AT&T, MCIWorldCom, and Sprint in 2003 of less than one percent. Since the combined fiber capacity share of these three carriers today is

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[22] *See Qwest Nipping Heels of IXC Leaders with Partnerships, Expanded Networks*, Fiber Optic News, Apr. 12, 1999; *BellSouth Begins Long Distance Qwest*, Fiber Optics News, Apr. 26, 1999; *Qwest, Williams Business Models Evolve Beyond Fiber*, Fiber Optics News, Jan. 4, 1999.

[23] *Qwest Nipping Heels of IXC Leaders with Partnerships, Expanded Networks,* Fiber Optic News, Apr. 12, 1999. See also *Qwest Awarded Additional $15 Million Contract From Star Telecommunications*, Business Wire, Mar. 31, 1999 (twenty-year wholesale commitment with Star Telecommunications).

[24] Qwest announced in December of 1998, for instance, that it would sell such application hosting services as e-commerce systems, Web server hosting, virtual private networks, media streaming services, and managed software services. *See Qwest, Williams Business Models Evolve Beyond Fiber*, Fiber Optics News, Jan. 4, 1999; *Qwest Communications Speeds Toward Completion of World's First Network Optimized for Internet Communications*, Business Wire, May 10, 1999.

approximately 58 percent (see Table Seven), and their revenue share of total toll minutes is approximately 77 percent (see Table Two), one might expect B&B to provide the reader with some indication as to why the investment analyst's dramatic forecasts should be accepted. Unfortunately, B&B offer the investment analyst's forecasts uncritically, leaving the reader with basic questions:

- What data did the investment analyst utilize?
- Was he privy to confidential company planning documents or did he rely on publicly available information?
- What are the standard errors associated with the forecasted growth rates?
- Was a statistical model of some type utilized in making the forecasts?
- How did the investment analyst model changes in macroeconomic conditions (e.g., interest rates and the level of consumer demand) that affect companies' investment plans?

The lack of answers leaves antitrust authorities and regulators with no foundation for relying on the B&B forecasts. Decisions regarding the permissibility of mergers should be based on current market realities and not on forecasts of an unknown nature. The burden of proof has not been realized to reach a determination that entry into long-distance markets is likely to be of such magnitude that the proposed merger should be allowed to proceed despite the substantial increases in market concentration that it will cause in already highly concentrated markets. The reader is left only with the impression that the witnesses on behalf of MCIWorldCom and Sprint support the merger on grounds that the market shares of these two companies will quickly become less than one percent of relevant markets and therefore the merger fails to meet the standard of materiality. That is,

on antitrust grounds the merger is not material because the companies involved are insignificant.

31. The Commission should not be sanguine about the ability of Qwest, Excel, Frontier, or other such carriers to prevent anticompetitive price increases resulting from the proposed merger. These firms have to date expended relatively little effort to reach the tens of millions of residential customers, instead focusing their efforts on attracting large business and wholesale customers. The cost necessary to establish a viable mass-market brand is itself a barrier to entry, as is the time it takes to do so. Indeed, B&B document the large advertising expenditures incurred by MCIWorldCom and Sprint in marketing their dial-around services. AT&T, MCIWorldCom, and Sprint have expended hundreds of millions of advertising dollars in the past twenty years to establish their current levels of customer awareness. They also have spent large sums of money to build and staff customer service centers, bulk billing facilities, operator services, and a variety of other capabilities that are necessary to serve the mass market.

32. Moreover, any claim that entry by Qwest, Excel, or Frontier could somehow prevent the adverse welfare effects of the proposed merger must confront the fact that these carriers' share of the mass market is and has been miniscule, despite the large margins earned by AT&T, MCIWorldCom, and Sprint on mass market services. In particular, a claim of this nature would have to respond to the fact that such entry has become less likely recently as a result of the introduction of such residential long-distance plans as AT&T's *One Rate*, *MCI One*, and *Sprint Sense AnyTime*. Although these plans do not represent the breakout of full competition in residential long-distance services, they have (as demonstrated in a Reply Declaration I submitted on behalf of Bell Atlantic's

application to offer in-region, interLATA services in New York) resulted in somewhat lower price-cost margins than those for standard MTS and other, older discount MTS services.[25] For some mass-market services, the likely price increases caused by the proposed merger would result in post-merger prices lower than those existing on other MTS services in the recent past. There is therefore no reason to assume that second-tier carriers will attract substantial share in the wake of a post-merger price increase.

33. B&B also emphasize the importance of regional Bell operating company entry into the provision of in-region interLATA services under 47 U.S.C. § 271. They do not, however, exactly agree with the position taken on such entry by MCIWorldCom and Sprint in their application. The two carriers appear to recognize that RBOC entry will not constrain post-merger prices to a significant portion of the population, absent widespread entry.[26] Further analysis of scenarios for the effects of the merger with competitive Bell operating company entry that I have undertaken lead me to conclude that MCIWorldCom and Sprint are correct in this respect. But there are two significant reservations to allowing this position to determine the decision on this merger. First, it is not at all certain that the Commission will approve a sufficient number of 271 applications to allow widespread entry within the relevant two-year time period. Second, my analysis establishes that for the near future, even with a significant acceleration of 271 approvals, the nationwide

[25] Paul W. MacAvoy, REPLY DECLARATION ON BEHALF OF BELL ATLANTIC BEFORE THE FEDERAL COMMUNICATIONS COMMISSION, attached to Application by New York Telephone Company (d/b/a Bell Atlantic - New York), Bell Atlantic Communications, Inc., NYNEX Long Distance Company, and Bell Atlantic Global Networks, Inc., for Authorization to Provide In-Region, InterLATA Services in New York, CC Dkt. No. 99-295.

[26] *See* MCIWorldCom Application at 53.

consumer welfare losses from the post-merger price increases of the Applicants will continue to exceed a billion dollars per annum.

34. In conclusion, although the various services highlighted in this Declaration – mass market, inbound WATS, wholesale, and larger business services generally – are not equally concentrated, they do exhibit a general pattern with regard to share. Tables Three through Six show that the effect of the proposed merger is to increase concentration significantly within each service category. What is important to note at this point is that combining the second- and third-largest, facilities-based carriers in already concentrated markets would elevate the HHI by 200 to 1000 in each case. This result of the proposed merger is not mitigated, furthermore, by the capacity growth of smaller, facilities-based carriers. These carriers have not prevented AT&T, MCIWorldCom, and Sprint from raising price-cost margins. Nor is the result mitigated by the prospect of RBOC entry, which is not certain to occur on a sufficiently wide scale within the next two years.

III. TESTING FOR THE PRICE COMPETITIVENESS OF THE TWO NATIONAL LONG-DISTANCE MARKETS

A. THE THEORETICAL FRAMEWORK

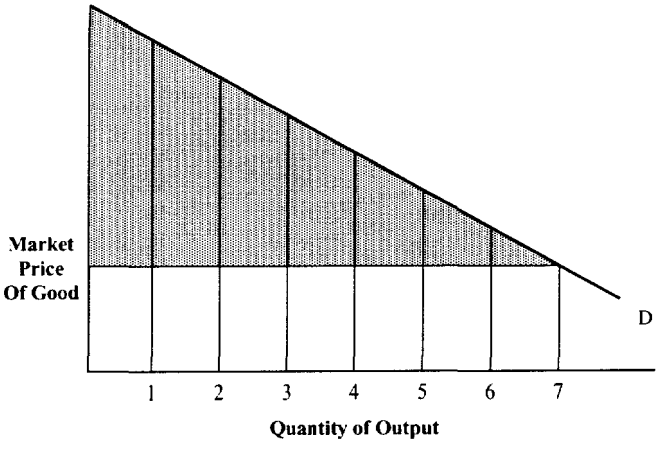
35. ***Price Decreases Reveal Consumer Gains.*** As competition reduces prices, the amount by which the consumers pay less, and the amount by which they increase purchases in dollar terms, constitute "consumers' surplus." Economists have long recognized the puzzling disparity between the price and overall value of some goods.[27]

[27] Adam Smith wrestled with this very paradox more than 200 years ago. *See* Paul A. Samuelson and William D. Nordhaus (1992), ECONOMICS, New York, NY: McGraw-Hill, Inc., p. 91.

The water we drink is cheap, for instance, but some is required for survival; diamonds, on the other hand, carry a very dear price tag but are not necessary in the same sense. This paradox underscores the fact that the price of a good is not an indicator of total value of having that good available but rather is set by the value in use of the marginal unit.[28] Given this paradox, it can be seen that consumers' surplus is the difference between what consumers spend and what they would spend in total to sustain availability of the product or service. The difference occurs as a result of the fact that the value of an extra unit decreases with increasing quantity, and that it is the last unit of that good purchased that sets the market price. In effect, "we pay for *each* unit what the *last* unit is worth."[29] Thus, consumers' surplus consists of the extra value received on all intra-marginal units.

36. Figure One illustrates this concept. Given that demand is assessed for a particular good by the line (D), and the market price is at the level indicated, the quantity demanded is seven units.

FIGURE ONE
CONSUMERS' SURPLUS



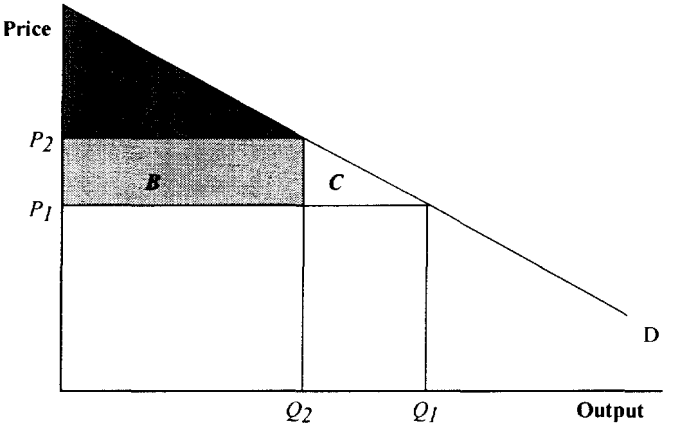
[28] *See id.*, p. 92.

[29] *Ibid.*

At levels of output less than seven, consumers receive benefits in excess of that price, as measured by the shaded area that measures willingness to pay more for each of the lesser amounts.

37. When a price increase occurs for an existing service, the decrease in consumers' surplus equals the price increase times the reduced quantity of consumption, plus one-half the price increase times the decrease in consumption caused by the higher price.[30] This can be seen in Figure Two.

FIGURE TWO
LOSS IN CONSUMERS' SURPLUS
RESULTING FROM PRICE INCREASE



Given the demand curve D for the service, consumers will pay price P_1 at an output of quantity Q_1. Should the price be increased from P_1 to P_2, however, the new market level of demand is at a reduced output, Q_2. Rectangle B represents the surplus loss on the reduced level of consumption, and triangle C represents the surplus loss on quantity no longer

[30] *See, e.g.*, G. Stigler (1966), THE THEORY OF PRICE, New York, NY: The Macmillan Co., p. 78; G. Becker (1971), ECONOMIC THEORY, New York, NY: Alfred A. Knopf, p. 103; Paul A. Samuelson and William D. Nordhaus (1992), ECONOMICS, New York, NY: McGraw-Hill, Inc., p. 92.

demanded as a result of the higher price. The total decrease in consumers' surplus occasioned by the price increase, therefore, is the combined area of rectangle B and triangle C, where B is the difference in prices multiplied by the quantity of output purchased after the price increase, and C is equal to one-half the product of the difference in prices and the difference in output.

38. ***The Theory of Price Formation When There Are Few Suppliers: Tacit Collusion Versus Non-Collusion (Cournot).*** It is axiomatic that, if there are few suppliers, they will seek prices at the highest sustainable, non-competitive level. But the more sources of supply, the more difficult it becomes to coordinate individual pricing to sustain the cooperation required to reach a high, non-competitive level.[31] The less coordinated, the greater the likelihood that list prices will be discounted in a process in which suppliers seek to increase their shares and end up matching price cuts just to maintain shares. An increase in the number of equal-sized suppliers almost always diminishes the ability of participants to generate above-competitive prices. Hay and Kelley (MCIWorldCom's expert here) have noted that "[f]ewness of numbers" is likely to be "an important factor in the ability of firms to collude successfully," and that "divergent ideas" or price levels are a "handicap" to the emergence of non-competitive behavior.[32] They conclude that "the smaller the number of firms selling in the market in question, the

[31] *See, e.g.,* Daniel Orr and Paul W. MacAvoy (1965), *Price Strategies to Promote Cartel Stability*, 32 ECONOMICA, p. 186; Dennis W. Carlton and Jeffrey M. Perloff (1990), MODERN INDUSTRIAL ORGANIZATION, Scott, Foresman and Company, Chapter Nine; and Jean Tirole (1988), THE THEORY OF INDUSTRIAL ORGANIZATION, MIT Press, Chapter 8.

[32] George A. Hay and Daniel Kelley (1974), *An Empirical Survey of Price Fixing Conspiracies*, 17 JOURNAL OF LAW AND ECONOMICS, p. 14.

higher the probability" of successful collusive behavior.[33] Carlton and Perloff take the argument a step further by noting that entry itself can disrupt non-competitive pricing strategies: "[e]ven if all firms initially in an industry . . . raise the price," new entry into the market is likely to change conditions such that they are "unable to keep the price high in the long run."[34]

39. These factors determining price formation are combined here using both the "tacit collusion" and non-collusion or "Cournot" frameworks. "Tacit collusion" is the coordinated but not agreed upon collusive interaction of pricing among few firms. The manner in which firms work out those interactions was synthesized in COMPETITION AMONG THE FEW (by William Fellner),[35] with the proposition that a limited number of firms can recognize their mutual pricing interdependence in decision rules used independently that lead to higher prices. Furthermore, once firms have worked out their various strategic responses to each other's actions, the competitiveness of the market likely cannot be improved absent structural change. As Fellner explained: "Not much is gained by trying to force a group of oligopolists to behave as if they were not aware of their individual influence on each other's policies."[36]

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[33] *Ibid.*

[34] Dennis W. Carlton and Jeffrey M. Perloff (2nd ed. 1994), MODERN INDUSTRIAL ORGANIZATION, New York, NY: Harper Collins College Publishers, p. 184.

[35] William Fellner (1949), COMPETITION AMONG THE FEW, New York: Alfred A. Knopf.

[36] *Id.*, p. 310.

40. In this context, the supplier price-cost margin for service offerings is determined by concentration (HHI), the inter-firm coefficient of conjectural variation ("*v*"), and the elasticity of demand ("*e*").[37] This relationship is expressed as follows:

$$L = \sum_{i=1}^{n} s_i L_i = \frac{HHI + \sum_{i=1}^{n} v_i s_i^2}{e} \qquad (1)$$

where

L_i	=	the price-cost margin of firm i,
HHI	=	The Herfindahl-Hirschman index,
s_i	=	market share of firm i,
v	=	conjectural variation of firm i, and
e	=	demand elasticity.

41. The extent of competitiveness is determined over the range of values of the coefficient of conjectural variation, from perfect competition (v = -1), to monopoly (v = (1/HHI)-1). The hypothesis is that interactive price behavior will conform to one of the following conditions:

- *Firms' conjectural variations are negative* – Each supplier determines that other suppliers change their prices in the opposite direction and by the same amount as its change in price or sales level. Thus, in a competitive market, the equilibrium price that equates supply and demand is unaffected by a change in any one firm's price or output. For example, if one supplier reduces its sales level, others increase their sales levels to absorb part of its reduced share. Such values of v cause

[37] *See, e.g.*, Stephen Martin (1993), ADVANCED INDUSTRIAL ECONOMICS, Cambridge, MA: Blackwell Publishers, p. 167.

price-cost margins to decrease. As the share absorbed by others increases, v approaches minus one, the price-cost margin equals zero, and competition is pervasive.

- *Firms' conjectural variations equal zero* – Each supplier determines that others do not change their sales or price levels in response to a change in its levels (i.e., the Cournot assumption). In this case, the firm sets its price-cost margin depending only on its share and demand elasticity in the relevant market. The price-cost margin then established after interaction in the market equals HHI times the inverse of the demand elasticity, i.e., equal to HHI/-e, which exceeds the competitive margin (equal to zero) but is less than the monopoly margin (equal to -1/e).

- *Firms' conjectural variations are positive* – Each supplier determines that others change price or sales levels in the same direction. For example, if that supplier reduces its price, others reduce theirs. Where all changes are equal, prices are collusive, and v = (1 - HHI) / HHI, causing price-cost margins to be established at the monopoly level (equal to $-1/e$).

42. Thus, if firms' conjectural variations and the elasticity of demand are unaffected by a merger, increases in market concentration likely will result in higher prices. The next section addresses this possibility, as well as the more conservative possibility that the post-merger firms will price less cooperatively than they have in the past. It is worth noting, however, that an increase in concentration accompanied by an increase in firms' conjectural variations (tighter tacit collusion) can cause the price-cost margin to increase by the multiple of concentration and conjectural variation effects, as indicated in equation (1).

B. Empirical Findings on the Competitiveness of Long-Distance Markets

43. The competitiveness of a market can be evaluated by an examination of the relation between price and marginal cost. The Appendix contains a detailed discussion of prices, marginal costs, and price-cost margins for a variety of services, including standard and discount MTS, switched and dedicated inbound WATS, switched and dedicated outbound WATS, and switched and dedicated combined service. The essential finding of this analysis of prices and marginal costs is that current price-cost margins indicate that long-distance markets do not perform competitively. In the fifteen years since the AT&T divestiture, sales concentration in the two generic national markets has fallen. The trend in the 1990s, however, in price-cost margins across services has been *increasing*. This inverse relationship between market concentration and price-cost margins indicates that the two national markets are not currently competitive. As shown in paragraphs 47-51 below, this finding of non-competitiveness has important implications for the likely effects on consumer welfare of the proposed merger. In particular, since the markets currently perform in a tacitly collusive manner, the impact of higher concentration is more adverse to consumers than if the markets were competitive. Intuitively, a given post-merger price increase results in a larger price-cost margin the higher is the pre-merger price-cost margin. However, as demonstrated in paragraph 52, my conclusion that adverse effects flow from the merger does not necessarily depend on the assumption that carriers will tacitly collude in the future. Even assuming that carriers price non-cooperatively in the future, the merger would still result in substantial consumer losses.

IV. LIKELY EFFECTS OF THE PROPOSED MERGER ON LONG-DISTANCE PRICES AND CONSUMER WELFARE

44. Within this framework, in which current price-cost margins are not at competitive levels, the likely changes in long-distance prices and consumer welfare caused by the proposed merger can be assessed. Two approaches are used to estimate the post-merger prices in the mass market and larger business market, both of which derive from equation (1) above. The first approach takes observed prices, marginal costs, and HHI to determine the combined effect of the conjectural variation and the demand elasticity on pre-merger margins. By determining the combined effect of the conjectural variation and the demand elasticity on pre-merger margins, we need not disaggregate the separate effects of these two factors on the post-merger price. In other words, this approach takes as given the extent of interfirm cooperation or tacit collusion without the requirement to estimate the conjectural variation term explicitly. Thus, in this scenario, we conservatively assume that the merger will not increase the amount of tacit collusion in the market. This scenario does not depend on establishing any particular level of tacit collusion. Assuming each firm has the same weighted average conjectural variation, and rearranging terms in equation (1), we use the formula $L/HHI = (1+v)/e$, to first estimate the combined effect of the conjectural variation and the demand elasticity on pre-merger margins and hold these effects constant after the merger. For example, using the observed pre-merger price for standard MTS of $0.199 per minute, the observed marginal cost of $0.0471 per minute, and the pre-merger HHI of 0.3945, we estimate the combined effect of the conjectural variation and the demand elasticity as approximately 1.935, i.e., $1.935 = (1+v)/e$. Assuming that the merger does not affect the conjectural variation or the demand elasticity,

we substitute the post-merger HHI into the formula above and solve for the post-merger margin (i.e., $L = HHI(1+v)/e$) and, hence, the post-merger price. This is equal to approximately $0.242 per minute. To determine by how much this price increase will depress the quantity demanded for standard MTS, we must assume a value for the elasticity of demand; based on current econometric evidence, this elasticity equals approximately –0.7. Thus, the post-merger price increase of approximately 20 percent will result in a 14 percent decrease in the quantity demanded of standard MTS. Finally, the pre- and post-merger prices and quantities are used, as with rectangle B and triangle C in Figure Two, to determine the dollar value of the estimated decrease in consumer surplus caused by the merger.

45. By construction, this method avoids the criticisms raised by B&B in their review of the Hausman study. First, it does not depend on carriers offering highly differentiated, brand name services. Second, it does not rely upon an explicit estimate of the elasticity of demand derived from econometric studies of which B&B are suspect. Rather, the combined effects of the demand elasticity and conjectural variation are estimated given observed prices, marginal costs, and HHI.

46. In contrast to the first approach, the second approach is based on the assumption that v equals zero, *i.e.,* that firms do not tacitly collude. With each firm's coefficient of conjectural variation equal to zero, the above Lerner index formula reduces to:

$$L = HHI / e . \qquad (2)$$

That is, by assuming unilateral behavior, we estimate the post-merger price in equation (2) by substituting the post-merger HHI to determine the predicted post-merger margin.

47. ***Scenario One: Welfare Effects of the Proposed Merger, Assuming Incumbent Long-Distance Carriers Tacitly Collude.*** In order to develop an historically based pattern for incumbent firm reactions following the proposed merger, I have estimated the combined effect of the conjectural variation and the demand elasticity on pre-merger margins. The Appendix shows the historical trends supporting this estimate. For the mass market, I estimate post-merger prices for both standard MTS and discount MTS. For the larger business market, I estimate post-merger prices for two services in that market: Special Contract and Dedicated Combined services.[38] Assuming that the merger does not affect the conjectural variation or the demand elasticity, I substitute the post-merger HHI into the formula $L = HHI(1+v)/e$ to estimate the post-merger margin and, hence, the post-merger prices. The results of these calculations are presented in Table Eight.

48. To determine by how much this price increase will decrease the quantity demanded, I must assume an elasticity of demand. Based on existing econometric research, I assume a market demand elasticity of –0.7 for the mass market and –1.85 for the larger business market.[39] The pre- and post-merger prices and quantities are used to

[38] Special contract services are discounted offerings to large-volume business customers. I assume the price for such services is approximately one-half the price of dedicated combined services. Dedicated combined service is a dedicated (i.e., non-publicly switched) service that combines inbound/outbound services. Since dedicated combined services are primarily purchased by smaller to medium-sized business customers, I use the mass market HHI to estimate the post-merger price for this service as it more accurately represents the level of supplier concentration for this service.

[39] The larger business elasticity equals the average of the estimated inbound and outbound demand elasticities. *See* Lester D. Taylor (1994), TELECOMMUNICATIONS DEMAND IN THEORY AND PRACTICE, Kluwer Academic Publishers, pp. 328-332. Note that these are market – not firm – demand elasticities.

determine the dollar value of the estimated decrease in consumer surplus caused by the merger. The results of these calculations are summarized in Table Nine.

TABLE EIGHT
SCENARIOS ONE AND TWO: KEY STATISTICS

	Pre-Merger	Post-Merger	
		Scenario One: All Carriers Tacitly Cooperate in Pricing	*Scenario Two*: All Carriers Price Non-Cooperatively
Mass Market:			
HHI	3,945	4,162	4,162
Price-Cost Margin			
Standard MTS	0.763	0.805	0.780
Discount MTS	0.632	0.667	0.657
Price per Minute ($)			
Standard MTS	0.199	0.242	0.214
Discount MTS	0.128	0.141	0.137
Minutes of Use (billions)			
Total	163	148	155
Larger Business Market:			
Special Contract			
HHI	2,466	3,084	3,084
Price-Cost Margin	0.436	0.546	0.458
Price per Minute ($)	0.055	0.068	0.057
Minutes of Use (billions)	81.7	49.1	75.7
Dedicated Combined			
HHI	3,945	4,162	4,162
Price-Cost Margin	0.721	0.761	0.725
Price per Minute ($)	0.111	0.129	0.113
Minutes of Use (billions)	81.7	58.5	79.4

Source: Pre-merger conversation minutes from Federal Communications Commission, Statistics of Communications Common Carriers, at Table 2.6 (1998 ed. 1999).
Note: The Dedicated Combined price is for MCI Network One, as of April 1, 1999. The Special Contract price is assumed to equal one-half the Dedicated Combined price. The Dedicated Combined HHI is assumed to equal the Mass Market HHI.

TABLE NINE
SCENARIOS ONE AND TWO:
CONSUMER WELFARE LOSSES FROM
MCIWORLDCOM/SPRINT MERGER

	Scenario One: All Carriers Tacitly Cooperate in Pricing	*Scenario Two*: All Carriers Price Non-Cooperatively
Single Year Consumer Loss:		
Mass Market	$3.9 billion	$1.8 billion
Larger Business Market	$2.2 billion	$0.3 billion
Total	*$6.1 billion*	*$2.1 billion*
Cumulative (Present Value) of Consumer Loss Over All Years:		
Mass Market	$25.9 billion	$12.3 billion
Larger Business Market	$14.4 billion	$2.0 billion
Total	*$40.3 billion*	*$14.3 billion*

Note: The present value is in perpetuity with annual consumer losses discounted at fifteen percent per annum. Totals may not sum due to rounding.

49. For residential message toll service customers paying standard plan rates[40] and for incumbent carriers maintaining coordinated pricing practices, the index price increases from $0.199 per minute (AT&T's standard MTS price) to $0.242 per minute. (See Table Eight.) The price of calling under the incumbent carriers' discount MTS plans also can be expected to increase as a result of the proposed merger. Again, assuming that the incumbent carriers maintain their coordinated pricing practices, the index discount

[40] Approximately 40.5 percent of residential customers are on standard MTS plans, while the remaining 59.5 percent are on discount MTS plans. The source for these data is PNR Associates, Bill Harvesting Data. In order to keep my estimates conservative, I assume that all of the discount plan customers are charged a price equal to the most favorable rate under each carrier's best available plan.

price likely will increase from $0.128 per minute (approximately the rate charged by AT&T's "One Rate Plus" plan) to $0.141 per minute. As shown in Table Eight, customers in the larger business market incur similar merger-induced price increases.

50. Given the post-merger prices shown in Table Eight, consumers realize reductions in consumer surplus equal to the increased payments they make on minutes they continue to purchase following the merger (rectangle B in Figure Two), plus the loss of minutes they no longer purchase as a result of the higher prices (triangle C in Figure Two). Price increases result in mass market demand declining from 163 billion to 148 billion conversation minutes and larger business market demand for conversation minutes of use decreasing from 163 billion to 108 billion minutes. The sum total losses to consumers arising from the price increases and resulting reductions in quantities demanded are presented in Table Nine; the annual losses to mass market and larger business subscribers are $3.9 billion and $2.2 billion, respectively.

51. Mass market subscribers likely will face reductions in consumers' surplus of approximately $25.9 billion in present value, while larger business subscribers will face reductions of approximately $14.4 billion in present value. "Present value" represents the current value, expressed in today's dollars, of a sum to be received in future periods.[41] The present value is in perpetuity with annual consumer losses discounted at fifteen percent per annum. This rate, which is in excess of current prime rate, is appropriate because of the inherent uncertainty in evaluating losses over time. Changes in structural market conditions brought about by new technologies or by unexpectedly robust competitive responses by incumbent interexchange carriers could impact the present value

[41] *See, e.g.*, Paul A. Samuelson and William D. Nordhaus (1992), ECONOMICS (New York: McGraw Hill, Inc., 14th ed.), pp. 270-273.

of losses caused by the proposed merger. As a result, I am hesitant to consider returns in perpetuity or over an indefinitely long period of time. Because the present value losses that I estimate in this Declaration are discounted heavily, however, they are nevertheless not sensitive beyond the first few years to the duration over which the present value is discounted.[42]

52. ***Scenario Two: Welfare Effects of the Proposed Merger, Assuming Incumbent Long-Distance Carriers Behave Non-Collusively.*** As an alternative to the first scenario, the second scenario assumes that long-distance carriers separately price as if conjectural variation is zero, which causes a convergence of their price-cost margins to the level equal to (HHI/-e).[43] Post-merger prices rise by smaller amounts so that consumer welfare losses are less. As shown in Table Eight, the price level for standard MTS, assuming non-cooperative pricing by incumbent carriers, would increase from $0.199 to $0.214 per minute, while the post-merger price for discount plan MTS would to rise from $0.128 to $0.137 per minute. These increases are $0.028 and $0.004 per minute less than if there were tacit collusion. Consequently, the probable consumer losses arising from the proposed merger are estimated to be $1.8 billion for mass market and $0.3 billion for large business, or a total of $2.1 billion annually. Cumulative present value losses equal $12.3 billion for mass market and $2.0 billion for larger business, for a total cumulative present value loss of $14.3 billion. (See Table Nine.)

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[42] To illustrate, consider that one dollar, discounted at fifteen percent for fifteen years, results in a present value of approximately $0.12; after twenty years, the figure is only about six cents.

[43] In performing this calculation, the value of v is set equal to zero, so that $(1+v)/e$ equals 1.40 for mass market and 0.54 for larger business services given demand elasticities of 0.70 and 1.85, respectively.

V. CONCLUSIONS

53. In support of a $129 billion merger between the second- and third-largest U.S. telecommunications companies, from whom tens of millions of consumers purchase services, Besen and Brenner offer the following: (1) a Credit Suisse/First Boston investment analyst's report; (2) survey data showing a number of residential customers using fringe carriers or dial-around services; and (3) 32 press releases from new facilities-based carriers regarding special contracts they have entered into with large business customers. This anecdotal information does not begin to meet the standard for empirical evaluation of mergers as specified in industrial organization and the HORIZONTAL MERGER GUIDELINES. The fact that B&B rely on such anecdotes is perhaps not surprising given that they have chosen not to follow the well-established methodology for evaluating the welfare effects of horizontal mergers. Rather than (1) defining the relevant markets; (2) ascertaining the likelihood of entry at a sufficient scale to ameliorate merger-induced price increases; (3) evaluating the competitiveness of the market through an examination of the relation between price and marginal cost; (4) considering the demand elasticities in the relevant markets; (5) estimating likely post-merger price increases; and (6) determining whether merger-induced efficiencies would result in offsetting reductions in marginal cost to prevent harm to consumers, B&B chose to present incomplete and insufficient anecdotal information. Their approach has not previously been adopted by antitrust and regulatory authorities and should not be adopted now. The stakes for U.S. consumer welfare are too high to use their ad hoc approach.

54. Upon using a well-established methodology for evaluating the welfare effects of horizontal mergers, I reach the opposite conclusion to that obtained by B&B: